

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1-10. (Cancelled)

11. (Currently Amended) A method for controlling robot handling comprising:

a) determining a direction of a change in an external force acting upon an object grasped with a grasp force;

b) determining, when a the change in the external force in said direction is equal to or greater than a predetermined threshold, if the change in the external force in said direction is due to a first condition which is a delivery of the grasped object or a second condition which is a non-delivery of the grasped object; and

c) outputting a grasp-force relaxing signal for releasing the grasped object when the change in the external force in said direction is due to the first condition and a grasp-force strengthening signal for strengthening the grasp force on the grasped object when the change in the external force in said direction is due to the second condition.

12. (Previously Presented) A method for controlling robot handling according to claim 11, wherein step b) includes:

determining that the change in the external force is due to a request for releasing the grasped object when the change in the external force is equal to or greater than the predetermined threshold; and

releasing the grasped object when the change in the external force is determined to be due to the request for releasing the grasped object;

determining, after releasing the grasped object in the releasing step, that the change in the external force is due to 1) the first condition which is the delivery of the grasped object when a dynamic frictional force in a gravity direction caused by a downward movement of the grasped object is not detected or 2) the second condition which is the non-delivery of the grasped object when the dynamic frictional force in the gravity direction caused by the downward movement of the grasped object is detected.

13-17. (Cancelled)

18. (Previously Presented) A method for controlling robot handling according to claim 11, further including:

a step that attention is called to an outside when the grasp-force relaxing signal for releasing the grasped object is outputted.

19. (Cancelled)

20. (Currently Amended) Apparatus for controlling robot handling comprising:

determining a direction of an external force acting upon an object grasped with a grasp force;

an object grasping unit for grasping the an object with the a-grasp force;

an external force detector for determining a change in an external force in said direction acting upon the object grasped with the grasp force;

a determining unit for determining, when the change in the external force in said direction is equal to or greater than a predetermined threshold, if the change in the external force in said direction is due to a first condition which is a delivery of the grasped object or a second condition which is a non-delivery of the grasped object; and

a grasp-force controller for outputting a grasp-force relaxing signal for releasing the grasped object when the change in the external force in said direction is due to the first condition and a grasp-force strengthening signal for strengthening the grasp force on the grasped object when the change in the external force in said direction is due to the second condition.

21. (Previously Presented) Apparatus according to claim 20, wherein the determining unit:

determines that the change in the external force is due to a request for releasing the grasped object when the change in the external force is equal to or greater than the predetermined threshold,

releases the grasped object when the change in the external force is determined to be due to the request for releasing the grasped object, and

determines, after releasing the grasped object, that the change in the external force is due to 1) the first condition which is the delivery of the grasped object when a dynamic frictional force in a gravity direction caused by a downward movement of the grasped object is not detected or 2) the second condition which is the non-delivery of the grasped object when the dynamic frictional force in the gravity direction caused by the downward movement of the grasped object is detected.

22. (Previously Presented) Apparatus according to claim 20, wherein attention is called to an outside when the grasp-force relaxing signal for releasing the grasped object is outputted.